

In the Claims

1. A method of monitoring operation of an automated tool comprising positioning in close proximity to said automated tool at least one wireless sensor,
monitoring at least one condition of said automated tool by said sensor, emitting signals containing sensory information in space to a microprocessor,
processing said sensor information in said microprocessor, and
in the event that the processor determines that said automated tool has departed from desired conditions of operation issuing a responsive signal.
2. The method of claim 1 including
employing said method to monitor a said automated tool performing an operation on a workpiece.
3. The method of claim 2 including
said at least one sensor being in a microelectromechanical system device.
4. The method of claim 3 including
employing a plurality of said sensors in said method.
5. The method of claim 3 including
measuring by said microelectromechanical system device at least one motion related characteristic of said automated tool.
6. The method of claim 2 including
employing as said automated tool a progressive stamping press operating on a metal sheet workpiece.
7. The method of claim 3 including
sensing by said microelectromechanical system device characteristics of said automated tool related to forces existing in the operation of said automated tool.
8. The method of claim 5 including

monitoring said automatic tool properties by said microelectromechanical system device during at least a portion of a cycle of operation of said automated tool.

9. The method of claim 3 including monitoring at least one acceleration related characteristic of said operating automated tool.

10. The method of claim 1 including transmitting said sensor signals to said processor employing an RF carrier.

11. The method of claim 10 including transmitting said sensor information as digital information.

12. The method of claim 11 including employing in said microelectromechanical system device an inertial sensor.

13. The method of claim 10 including transmitting said sensor signals only if a monitored condition departs from a desired threshold value.

14. The method of claim 6 including employing said method to monitor misfeed.

15. The method of claim 1 including selecting said responsive signals from a group consisting of an automated tool shutdown, alarm signal and data delivery signal.

16. Apparatus for monitoring operation of an automated tool comprising an automated tool,
at least one wireless sensor for monitoring a condition of said automated tool and emitting sensor signals through space,
a microprocessor for receiving said sensor signals and determining if a departure from a desired characteristic exists and if so emitting a responsive signal.

17. The apparatus of claim 16 including said at least one wireless sensor being in a microelectromechanical system device.

18. The apparatus of claim 17 including
said apparatus having a plurality of said sensors.
19. The apparatus of claim 16 including
said automated tool being a progressive stamping press for performing
operations on a metal sheet workpiece.
20. The apparatus of claim 17 including
said microelectromechanical system device being structured to monitor
force related characteristics.
21. The apparatus of claim 19 including
said microprocessor responsive signals being selected from the group
consisting of an automated tool shutdown signal, an alarm signal, and a data delivery
signal.
22. The apparatus of claim 16 including
said microelectromechanical system device sensors being structured to
monitor an acceleration related condition.